

<b>Notice of Allowability</b>	Application No.	Applicant(s)	
	10/642,791	BROWN ET AL.	
	Examiner	Art Unit	
	H. T. Le	1773	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to May 9, 2005.
2. ☒ The allowed claim(s) is/are 1-8 and 10.
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

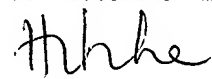
\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

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| <ol style="list-style-type: none"> <li>1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</li> <li>2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</li> <li>3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br/>Paper No./Mail Date _____</li> <li>4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br/>of Biological Material</li> </ol> | <ol style="list-style-type: none"> <li>5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</li> <li>6. <input type="checkbox"/> Interview Summary (PTO-413),<br/>Paper No./Mail Date _____</li> <li>7. <input type="checkbox"/> Examiner's Amendment/Comment</li> <li>8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance</li> <li>9. <input type="checkbox"/> Other _____</li> </ol> |
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 H. T. Le  
 Primary Examiner  
 Art Unit: 1773

### REASONS FOR ALLOWANCE

1. The following is an examiner's statement of reasons for allowance:
2. The two broadest claims are claims 5 and 10.
3. Claim 5 is directed to a multistage polymer particle comprising:

(a) a first polymer comprising a polymerized unit of a multi-ethylenically unsaturated monomer and at least one complementary functional group, and

(b) a second polymer having a Tg from -60 to 35°C, wherein the second polymer is substantially free of said functional group, wherein (c) the average weight ratio of said first polymer to said second polymer is from 1:2 to 1:20.

None of the references of record, singly or in combination, teach or suggest, multiphase polymer comprising such specific combination of polymers. The '161 Bardman patent (US 6,710,161), the Mongoin patents (US 5,147,506 & 5,110,358), and the Ravet patent (US 5,145,902) each teach a copolymer composition comprising a functional group. However, they fail to teach two separate polymerized units of monomers, one of which having specific functional group which is absent in the other polymerized unit. In addition, these patents fail to teach the particular Tg for the unit that is free of the functional group. The Snyder patent (US 5,344,675) teaches a polymer blend of two latex polymers, each of which has a specific range of Tg, but it fails to teach a functional group which attached to one latex and absent in the other.

4. Claim 10 is directed to a composite particle comprising:

(a) an inorganic particle and (b) a plurality of polymer particles absorbed on the surface of said inorganic particle, each of said polymer particles having a pendant phosphorous acid full-ester group.

None of the prior art references teach or suggest a phosphorous acid group of full-ester. The '051 Bardman patent (US 6,756,051) teaches polymer particles absorbed on the surface of an inorganic particle wherein the polymer comprises a polymerized unit of monomers containing phosphorous acid functional group. However, the phosphorous acid group is not phosphorous acid full-ester group. Phosphorous acid full-ester group as defined in the specification means that the phosphorous acid does not contain ionizable hydrogen or salt thereof (see instant specification, page 9, last two paragraphs). The phosphorous acid groups as taught in the Bardman patent are dihydrogen phosphate groups or phosphorous acid groups that contain an OH-group bonded to the phosphor atom (col. 6, lines 20-47), thus the hydrogen of the phosphorous acid groups disclosed in the Bardman patent is ionizable. The '161 Bardman patent, the Mongoin patents (US 5,147,506 & 5,110,358), and the Ravet patent (US 5,145,902) also mention the same phosphorous functional group as taught the '051 Bardman patent. However, none of these functional groups are full-ester group as required in claim 10.

5. Independent claims 1-3 are substantially the same as claim 5 with the additional requirement of the functional group being phosphorous acid or polyacid side-chain group. Independent claims 6 and 7 are substantially the same as claim 5 with the additional requirement of coupling agent to form a covalently-bonded composite particle.

6. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to H. T. Le whose telephone number is 571-272-1511. The examiner can normally be reached on 10:00 a.m. to 6:30 p.m., Mondays to Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



H. T. Le  
Primary Examiner  
Art Unit 1773

July 21, 2005